

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE THE APPLICATION OF:  
Harald SCHWAHN, et al.

:  
: GROUP ART UNIT: 1797

SERIAL NO.: 10/551,239

: EXAMINER: HINES, LATOSHA D.

FILED: September 28, 2005

FOR: FUEL COMPOSITION

**DECLARATION UNDER 37 C.F.R. §1.132**

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

SIR:

Now comes Harald SCHWAHN, who deposes and states that:

1. I am a graduate of Heidelberg University and received my degree in the year 1984 in chemistry (Master of Science) and in 1989 in physical chemistry (Ph.D.).
2. I have been employed by BASF SE for 20 years as a chemist in the field of additive development.
3. The following experiments were carried out by me or under my direct supervision and control:

Experiments for different additive/alcohol combinations and their influence on IVD and TCD were performed. The two graphical illustrations below summarize these experimental results.

In order to supplement the experimental results already contained in table 2 of the original specification (additive PIBA in the absence of ethanol, or in the presence of 10 vol % or 50 vol % ethanol), the Applicant has performed further engine tests (corresponding to example 4) wherein further fuel additive types have been tested in the presence or absence of 50 % ethanol. At the end of each engine test IVD and TCD have been examined. The following further additives have been used:

- polyetherlamine (“PEA”) (Kerocom 3376, Tridecanol N x 22 BO x NH<sub>2</sub>)
- polyisobutene succinamide (“PIBSI”) (based on PIB1000), as well as
- a product obtained by Mannich conversion of substituted phenyl with aldehyde and amine (“Mannich”).

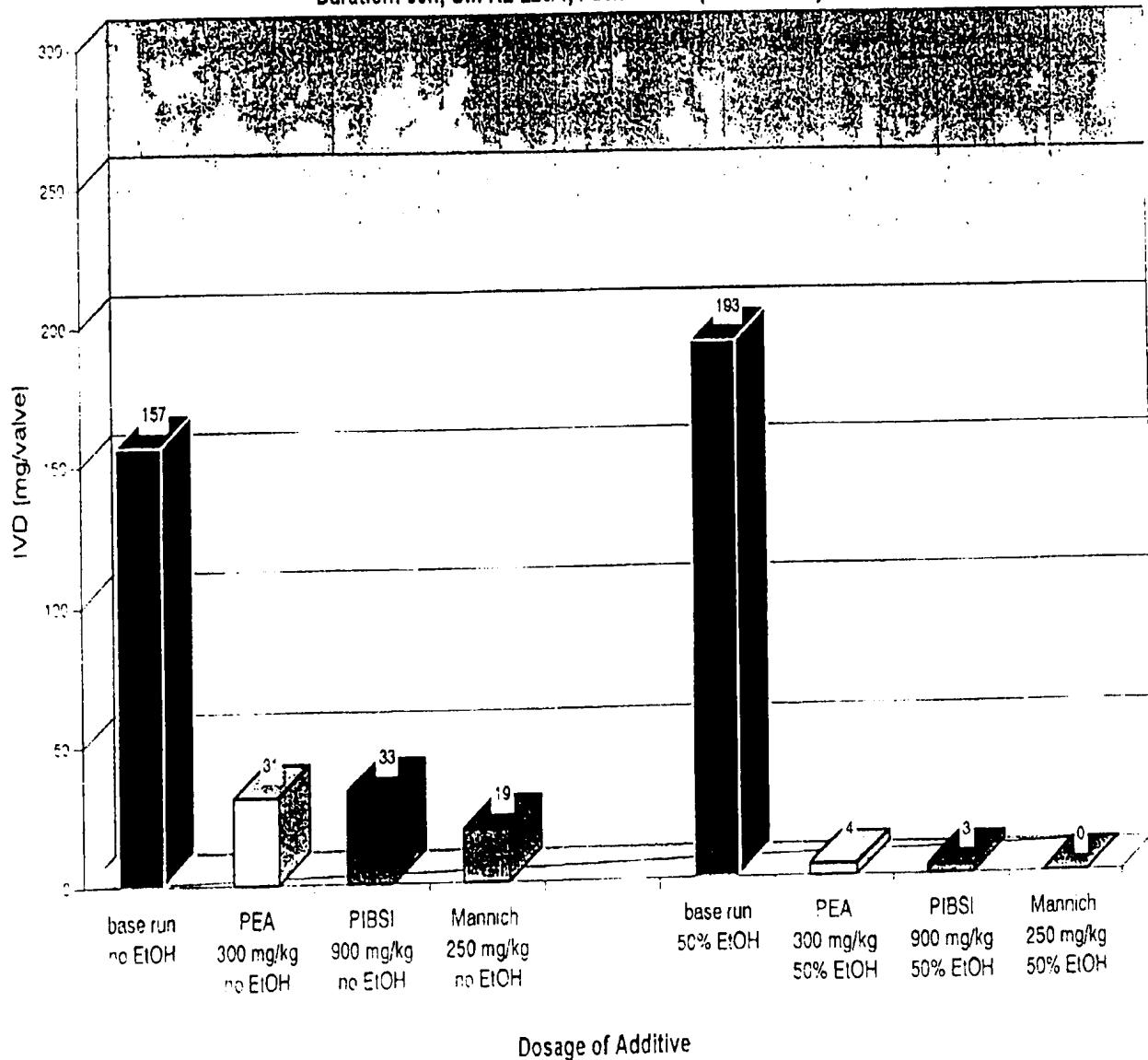
These additives have been added with or without ethanol to conventional Euro-Super-fuel (ROZ 95) according to DIN EN 228. The dosage of the additives can be taken from the legend to the corresponding figures.

The experimental results show that similarly to PIBA the other fuel additives (PEA, PIBSI, Mannich) show, if combined with ethanol, improvements with respect to IVD and/or TCD. In addition, the results of the corresponding base runs, with or without the addition of ethanol, show that ethanol alone has practically no influence on IVD and TCD. Accordingly, this additional data provides further evidence of the finding by the Applicants that the combination of said type of gasoline fuel additives and lower monoalcohols has a synergistic effect on the reduction of intake valve deposits and combustion chamber deposits.

## INTAKE VALVE CLEANLINESS

Engine: MERCEDES-BENZ M 102 E / Engine Lab: BASF (12/07-1/08)

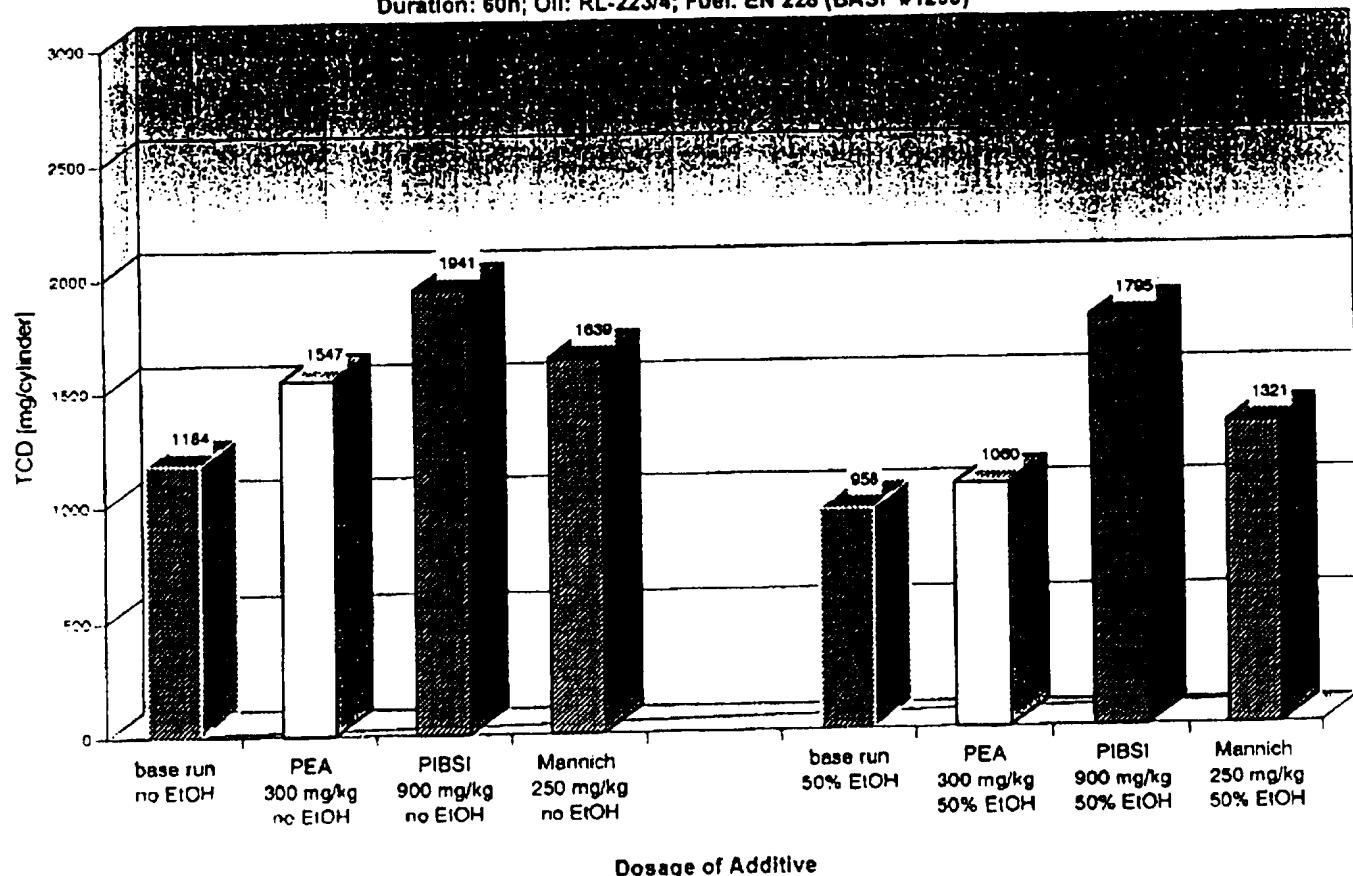
Duration: 60h; Oil: RL-223/4; Fuel: EN 228 (BASF #1299)



# COMBUSTION CHAMBER DEPOSITS

Engine: MERCEDES-BENZ M 102 E / Engine Lab: BASF (12/07-1/08)

Duration: 60h; Oil: RL-223/4; Fuel: EN 228 (BASF #1299)



SA/EVORIO J 550  
BASF AG

Prüfstand/Ethanol\_2008 PF\_54451.xls\102CCD  
Stand 09.08.2008

4. I declare under penalty of perjury under the laws of the United States of America  
that the foregoing is believed to be true and correct. 28 U.S.C. §1746(1).

Ronald Klisch  
Signature

April 17th, 2009  
Date